

INFLUENCING SELF-EFFICACY LEVELS

BY

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### **Abstract**

The goal of this study was to analyze how priming individuals would affect general self-efficacy levels. The sample consisted of 209 undergraduate students from Appalachian State University who completed the New General Self-Efficacy scale. The subjects received one of four prompts that either implicitly or explicitly primed them to think of themselves as leaders or experience stereotype threat with respect to gender and self-efficacy. Overall, our participants all reported very high self-efficacy levels with little variance in the scores. Results indicated that females did not experience stereotype threat when explicitly primed to think of self-efficacy as masculine. Males who were explicitly primed to think of self-efficacy as masculine did not report higher self-efficacy than those who were implicitly primed. Males did not report higher self-efficacy than females. Females who were explicitly primed to think of themselves as leaders did not report higher self-efficacy than those explicitly primed to think of self-efficacy as masculine. Participants who had held a leadership position did report higher self-efficacy than those who had not. Further research should be conducted in this area to determine if other types of priming may influence self-efficacy levels.

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### **Influencing Self-Efficacy Levels**

While it can be challenging to pinpoint a “best” leadership style or approach, one consensus that psychologists have been able to come to is that there are certain generic personality and character traits that successful leaders have in common. Some of these characteristics include empathy, foresight, and persuasion (Hockwalt, 2001). However, a common theme that emerges in these types of studies is the link between leadership and self-confidence related traits. However, what has not been as heavily analyzed is how to influence confidence in various groups of people and what the results of this influence might be. One trait that is strongly associated with confidence is self-efficacy. It is clear by looking at a wide range of studies that self-efficacy levels are indicative of leadership success among a wide range of fields.

#### **Self-efficacy**

When faced with any amount of uncertainty, it is a natural human reaction to try to exercise full control of a situation. This has helped homosapians from an evolutionary perspective because it allows us to regain control over unstable situations that could lead to danger. While this is a concept that has been around and accepted for decades, it was not until 1977 that Albert Bandura first defined this attribute and coined the term “self-efficacy.” He defined this trait as “the belief in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands” (Bandura, 1994, p.77). Self-efficacy is essentially how well people believe that they will perform in any given situation. This trait is related to how confident people feel about doing something and strongly influences the overall outcome obtained. People who have higher levels of self-efficacy look at challenging circumstances as puzzles ready to be solved as opposed to impassable situations (Bandura, 1994). An individual with high self-efficacy is more likely to view failure as a driving

force for improvement, and thus is more likely to move on from disappointment quickly and effectively.

While self-efficacy is typically conceptualized as being situationally dependent, there are generalizations that can be made about this character trait. These correlations hold important implications for the wider population, and should not be pushed aside. People with higher self-efficacy typically set more challenging goals for themselves, stick with these goals longer, and push themselves further (Gandoy-Crego, 2016). This means that there is a link between overall higher achievement and self-efficacy both in personal and career-oriented goal setting. This concept applies across cultures and fields. For example, a study done in Ghana indicated that pineapple farmers were more likely to expand their farms, thus increasing their disposable income level and standard of living, if they had higher levels of self-efficacy (Wuepper, 2016). Those farmers that believed in their abilities were able to set higher achievement standards and begin to break out of the poverty cycle. Self-efficacy can also influence people in more subtle ways. Zimmerman (2000) conducted a study with students that indicated that self-efficacy can alter people's efforts, persistence, and emotional reactions. These studies clearly indicate that self-efficacy can have an impact on both a micro and macro level in people's lives, altering situations ranging from living conditions to mood.

This trait also correlates to people's willingness to make large transitions in their life. Since goal-planning is a key part of moving from one stage of life to the next, it is not surprising that Huang (2015) found that higher self-efficacy was linked to higher employment levels after college, even though positive outlook had no correlation. This is because college graduates with higher self-efficacy are more likely to exude traits that employers are looking for such as self-esteem, confidence, and motivation. Self-efficacy is even an indicator of overall health because

people with higher self-efficacy are more likely to seek out medical help and overcome illness (Gandoy-Crego, 2016). The link between vitality and self-efficacy has been shown in various situations. One example is a study conducted about food insecurity. Since self-efficacy is linked to a greater likelihood of employment, it was not surprising to see that food-secure participants in the study had higher levels of self-efficacy than their counterparts (Lyles et al., 2013). The participants with lower self-efficacy did not significantly improve their levels of fruit and vegetable consumption over a period of several months, while participants with higher self-efficacy levels saw improvement. These results are another indication that self-efficacy is linked to greater levels of motivation and self-improvement.

Overall, a body of research supports that self-efficacy plays a significant role in various aspects of people's lives. Knowing how influential this character trait is leads to the question of whether self-efficacy can be influenced in any way. Research indicates that people's self-efficacy can be influenced depending on how they are treated and that it can be increased over time (Betz & Schifano, 2000). For example, O'Halloran et al. (2016) discovered that patients' self-efficacy increased when they participated in motivational interviews after an injury. Even subtle, subconscious activities like presenting participants with one brand over another can influence self-efficacy (Ji Kyung & Roedder, 2014). Knowing this, led us to explore the possibility that priming could have an influence on someone's overall self-efficacy levels.

### **Priming**

Since the 1980's psychologists have become increasingly aware of the fact that human actions can be subtly influenced by their environment, their senses, and word choice. This has become known as the priming effect. Priming occurs when a stimulus increases the availability of certain information so that it comes more easily to the mind. This readily accessed information

then has the power to directly impact perceptions and behavior (Pichon, Boccato, & Saroglou, 2007). Priming can occur both through visual elements such as pictures and colors, but also through written and audible words you present to people. In 1996, Bargh, Chen, and Burrows published a study that showed the power of priming by presenting participants with various words. One group was shown words correlated with elderly people such as “grey” and “wrinkles.” Another group had words associated with youth, while the third group had neutral words. Then the participants were observed walking down a hallway after they left the experiment. The ones who had been primed with elderly words tended to walk more slowly down the hallway. Their experiment indicates how even small actions such as reading a sentence can carry over to how you behave later on.

The priming effect has been shown time and time again to have similar effects in differing situations. Several studies have been conducted at polling places to see how priming influences voters. One small study indicated that polling locations heavily decorated with patriotic symbols were slightly more likely to express conservative/Republican policies and preferences. (Smart, 2013). A study completed by Mantovani (2017) showed how brand exposure can influence behavior. When presented with brands that had audacious traits, subjects were more likely to take higher financial risks directly after exposure.

**Implicit versus explicit priming.** There are multiple ways to prime subjects, but one clear distinction is implicit versus explicit priming. Explicit priming presents people with extremely obvious cues or images that are blatant, while implicit priming tries to take a more subtle approach. Implicit priming may use words associated with a particular subject or stereotype, but people are relatively unaware when it is occurring. In 1996, Chartrand recreated a previously conducted study on intentions and goal-setting. Originally this study done by Bargh



had given subjects explicit instructions on how to set goals, but Chartrand presented participants with more implicit information (Chartrand, 1996, Bargh, 1996). Chartrand's study had very similar results to Bargh's original study. These results indicated that both implicit and explicit priming have significant influence on people's perceptions and resulting actions.

In order to see if there were differing effects, our study primed subjects with specific language in an attempt to both implicitly and explicitly activate stereotype threat.

### **Stereotype Threat**

Stereotype threat can be defined as "the fear of confirming a real or perceived stereotype" (Flanagan, 2011, p. 90). This fear may cause a rise in threatening feelings when people think they are being negatively stereotyped in any way. Ultimately this can lead to lower performance and can inadvertently further the stereotypes portrayed about a group. These stereotypes may not all be negative, but they still cause people of a certain group to feel outside societal pressure about fitting into a social norm. For example, people might expect women to be more empathetic and understanding than men. While these traits do not have a negative association, women may feel out of place if they are more emotionally removed.

This phenomenon exists across race, sexual orientation, gender, and minority groups in general. Research has found that stereotype threat has a wide range of implications ranging from the assertiveness of women in negotiations, to standardized test performance, to basic sorting and assembly task speed (Flanagan, 2011). Studies have found that the best way to trigger stereotype threat is by presenting the affected group with the stereotype. For instance, Levy (1996) performed a stereotype experiment on an elderly population. One group was presented with stereotypes about elderly individuals and the other was not. When both groups were later asked to complete an activity, the group that had been presented with the stereotypes showed greater

levels of impaired memory (Levy, 1996). Another study showed that when African American men and women were shown how they typically score lower in testing situations they ended up confirming this stereotype and doing worse than a group of African Americans that had not been presented with this information (Wheeler & Petty, 2001).

The present study analyzed if people's self-efficacy levels would be influenced by priming. Four different prompts were presented. Two of the prompts primed women to think of themselves as women by inciting stereotype threat. One of these prompts was explicit, while the other was implicit. The other two prompts primed the subjects to think of themselves as leaders. Here again we had one implicit and one explicit prompt. This permitted the examination of several hypotheses, as follows.

## **Hypotheses**

Stereotype threat is increasingly becoming a major issue for women in and outside of the workplace. One study conducted in 1999 showed how television commercials could incite stereotype threat. Women were shown gender-stereotypic advertisements that implied that men were better at mathematics, while others were shown a nonthreatening version. When given a subsequent test the women shown the sexist commercial scored lower on the math section and focused more on the non-math related questions (Aronson et al., 1999).

If a certain group knows that a negative stereotype exists, they are more likely to be affected by stereotype threat. O'Brien (2003) conducted an experiment where a control group of men and women were not told that a gender difference existed in math scores. Another group was informed that this gender gap existed and then both groups did several math problems. Results showed that for men there was no significant score difference between the control group and experimental group, but women in the experimental condition performed more poorly than

the ones in the control group (O'Brien et al., 2003). Both O'Brien's and Aronson's previous research leads us to believe that:

*Hypothesis 1: Females who are explicitly primed to think of self-efficacy as masculine (i.e., experience stereotype threat) will report lower self-efficacy scores than males who are explicitly primed to think of self-efficacy as masculine (i.e., do not experience stereotype threat).*

Previous stereotype studies also show us that stereotype threat usually only has a noticeable impact on the group that is being negatively stereotyped against. This allows us to further hypothesize that:

*Hypothesis 2: Males who are explicitly primed to think of self-efficacy as masculine will not report significantly different self-efficacy scores than those who are implicitly primed to think of self-efficacy as masculine.*

There has been a good deal of research surrounding the gender gap in self-efficacy between males and females. Adachi (2012) was able to link higher self-efficacy to males in the generalized fields of science and technology. Self-efficacy in these fields was linked to childhood experiences of outdoor engagement and interactions with plants and animals. Because men typically have more of these experiences, Adachi indicated that men have higher-self efficacy in math and science careers. A meta-analysis of 187 studies done by Huang (2013) indicated that boys had overall higher academic self-efficacy. While females had a slightly higher self-efficacy in language arts, men had higher scores in math, computer science, and all social sciences. Young women and girls have lower self-efficacy in STEM related activities and classes, even when their scores and past performances are better than boys (Rittmayer & Beier, 2008). This eventually leads to fewer women trying to follow science, technology, engineering,

and math careers. However, this phenomenon is not localized to women in male-dominated fields. Research also suggests women in leadership roles across a variety of fields have lower self-efficacy than their male counterparts, especially among college aged women (Betz, N. E., Harmon, L. W., & Borgen, F. H., 1996). We expect that our study will mirror the results of preceding self-efficacy assessments in that:

*Hypothesis 3: Males will report higher self-efficacy than females.*

A popular study of Asian women showed that when someone identifies with a certain group it may cause them to perform better or worse on certain assignments (Shih, M., Pittinsky, T. L., & Ambady, N., 1999). This study indicated that those individuals that were prompted to think of themselves as Asian, performed better on a math test than those prompted to think of themselves as women (Shih et al., 1999). This shows that, in certain situations, when stereotypes surround a group, category, or ethnicity in a positive way it can positively influence activities or assessments. However, when there is a negative connotation surrounding a classification of people, they may perform worse if they are reminded of the stereotype. In Shih's study, this manifested itself by feeding into the stereotypes that Asians are good at math and women struggle with math.

At the same time, many traits associated with self-efficacy are also associated with leadership. Some of these include an ability to conquer challenges, being able to motivate and positively influence others, and having a high level of personal agency. In one study, Kurt (2016) explored the concept of how self-efficacy is linked to teaching ability. He found that the most successful teachers in schools in Turkey were those with higher levels of self-efficacy. Those were the teachers that stood out to administrators as successful instructors and overall leaders in

their field (Kurt, 2016). Since women typically have lower self-efficacy and leaders have high self-efficacy we can hypothesis that:

*Hypothesis 4: Females who are explicitly primed to think of themselves as leaders will have higher self-efficacy than those explicitly primed to think of self-efficacy as masculine (i.e., experience stereotype threat).*

As stated above, self-efficacy is positively correlated with leadership experience. A study conducted in 2008 suggests that “positive psychological states such as efficacy directly promote effective leader engagement, flexibility and adaptability across the varying challenges characterizing complex organizational contexts” (Hannah, Avolio, Luthans, & Harms, 2008, p. 669). This means that to be a successful leader for an extended period of time it is imperative to have high self-efficacy. If someone’s objective is to successfully lead others, they must first feel confident in their own abilities to lead and accomplish set goals.

A person in a leadership position is uniquely positioned to improve their self-efficacy levels since they are constantly given the opportunity to mobilize a group and try to overcome challenges. Over time this builds up many of the characteristics associated with self-efficacy such as high levels of self-confidence and self-reliance. Since there is a link between leadership ability and self-efficacy as a whole, we expected to find that:

*Hypothesis 5: Participants that have held a leadership position will have report higher self-efficacy scores than those who have not.*

## Method

### Participants

The participants for the study were 209 undergraduate students from Appalachian State University. The sample was a mix of 100 females (48.1%) and 108 males (51.9%); one participant did not indicate sex. 91% of participants were Caucasian, which was not surprising because 84.45% of the total student body at Appalachian is Caucasian (Appalachian State, 2016). 2.4% of participants were African American, 2.82% were Asian, 3.3% were Hispanic, and .48% were other. Participants ranged in age from 19 to 49, with an average age of 21.95 ( $SD = 2.51$ ). Participation in the study was voluntary. Participants received extra course credit in exchange for participation in the study.

This research project strictly adhered to the ethical standards of Appalachian State University. This project was approved, as required, by the Institutional Review Board of Appalachian State University (June 21, 2016; IRB Reference #16-0324). See Appendix A for IRB approval and Appendix B for informed consent.

### Measures

**Self-efficacy.** Self-efficacy levels were assessed using a pre-established self-efficacy assessment known as the New General Self-Efficacy scale (NGSE; Chen, Gully, Eden, 2001; see Appendix C). Responses were made on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). We choose to use this scale over the General Self-Efficacy scale (GSE), because studies have shown that the NGSE has a higher construct validity, and demonstrated high reliability (Chen, Gully & Eden, 2001). It has also been shown to be a good indicator of self-efficacy across a wide range of contexts and tasks. The internal consistency reliability estimate for the NGSE for the present study was 0.86.

**Leadership position.** Leadership experience was assessed by asking each participant if they currently hold any leadership positions. If they said yes, they were then prompted to indicate which type of leadership position they hold. They could choose from work, school organization/club, sports team, church, or other. They were then asked to provide a brief description of their leadership role in two to three sentences. If they said they did not currently hold a leadership role, they were asked if they had held any type of leadership position within the last two years. They were then asked what kind of leadership position and to describe that position. They were given the same options as above, regarding the type of position. If a participant answered no to both of these questions, the survey skipped directly to the demographic items.

**Demographics.** Participants were asked to provide their gender, race, age, class rank, and major.

## **Procedure**

Participants were first presented with the informed consent information and asked to provide their consent to participate in the study. Once consent was provided, participants were randomly assigned to one of four conditions. In each condition, participants were presented with a brief paragraph that either explicitly or implicitly primed the respondent to think of self-efficacy as masculine (thus, priming the participants to think of their gender), or to think of him- or herself as a leader. In Condition 1, participants were explicitly primed to think of themselves as leaders. In Condition 2, participants were implicitly primed to think of themselves as leaders. In Condition 3, participants were explicitly primed to think of self-efficacy as masculine in order to activate stereotype threat in females. In Condition 4, participants were implicitly primed to

think of self-efficacy as masculine in order to activate stereotype threat in females. See Appendix D for the statements presented to participants in each condition.

After reading the priming statement, participants were then presented with the New General Self-Efficacy scale. Following that, participants were asked about their leadership experience. Finally, participants were asked to indicate their gender, race, age, class rank, and major.



## Results

Descriptive statistics and variable intercorrelations for the study's variables are presented in Table 1.

Hypothesis 1 predicted that females, but not males, will experience stereotype threat when explicitly primed to think of self-efficacy as masculine. An independent samples t-test was conducted to compare the self-efficacy scores of females to males in Condition 2. Although the results were in the expected direction, the difference between females ( $M = 4.32$ ,  $SD = 0.47$ ) and males ( $M = 4.47$ ,  $SD = 0.45$ ) was not significant,  $t(50) = 1.09$ ,  $p = .279$ . Thus, Hypothesis 1 was not supported.

Hypothesis 2 predicted that males who are explicitly primed to think of self-efficacy as masculine will not report significantly different self-efficacy scores than males who are implicitly primed as such. An independent samples t-test was conducted to compare the self-efficacy scores of males in Condition 1 to males in Condition 2. As expected, the difference between males implicitly primed to think of self-efficacy as masculine ( $M = 4.27$ ,  $SD = 0.55$ ) and males explicitly primed to think of self-efficacy as masculine ( $M = 4.47$ ,  $SD = 0.45$ ) was not significant,  $t(55) = -1.48$ ,  $p = .146$ . Thus, Hypothesis 2 was supported.

Hypothesis 3 predicted that, overall, across all conditions, males would report higher self-efficacy scores than females. An independent samples t-test was conducted to compare the self-efficacy scores of males to females across all conditions. Although the results were in the expected direction, the difference between males ( $M = 4.36$ ,  $SD = 0.46$ ) and females ( $M = 4.26$ ,  $SD = 0.55$ ) was not significant,  $t(206) = 1.32$ ,  $p = .189$ . Thus, Hypothesis 3 was not supported.

Hypothesis 4 predicted that females who are explicitly primed to think of themselves as leaders will report higher self-efficacy scores than females explicitly primed to think of self-

efficacy as masculine. An independent samples t-test was conducted to compare the self-efficacy scores of females in Condition 2 to females in Condition 4. The difference between females in Condition 2 ( $M = 4.33$ ,  $SD = 0.47$ ) and females in Condition 4 ( $M = 4.28$ ,  $SD = 0.47$ ) was not significant,  $t(50) = 0.33$ ,  $p = .74$ . Thus, Hypothesis 4 was not supported.

Hypothesis 5 predicted that participants (both male and female) who have held a leadership position would report higher self-efficacy scores than those who have not. 82 of the 209 participants (39%) reported having held a leadership position (formerly or currently); 127 of the 209 participants (61%) reported never having held a leadership position. An independent samples t-test was conducted to compare the self-efficacy scores of participants who reported having held (formerly or currently) a leadership position to participants who reported never holding a leadership position. The difference between participants who have held a leadership position ( $M = 4.40$ ,  $SD = 0.40$ ) and participants who have never held a leadership position ( $M = 4.25$ ,  $SD = 0.56$ ) was significant,  $t(207) = 2.019$ ,  $p = .045$ . Thus, Hypothesis 5 was supported.

## Discussion

The primary purpose of this study was to see how and if priming influences self-efficacy. Overall, we were surprised to find that priming seemed to have very little influence on an individual's self-efficacy levels. The patterns showed that there was very little variance and an atypically high mean in self-efficacy scores. Other studies that have utilized the New General Self-Efficacy scale in the past have had different results. While our mean score was 4.31, a study conducted on a similar group of 316 undergraduate students had a mean score of 3.87 (Chen et al., 2001). More surprisingly, the NGSE was given to a group of managers and their mean score of 4.14 was still lower than that in the present study (Chen et al., 2001).

There are several theories that we have explored as to why the self-efficacy scores reported in the present study were unexpectedly high. One possible explanation is that recent generations of college students have been characterized as having high self-esteem and could even be considered slightly narcissistic (Twenge, Konrath, Foster, Campbell, & Bushman, 2008). Growing up in a generation that tries to put everyone on a level playing field and boost self-confidence could lead to inflated self-efficacy perceptions.

Another possibility is that the structure of Appalachian State's College of Business could have affected the scores since the majority of our participants are getting major or minors in business. The business college offers numerous opportunities for students to receive mentoring and guidance. Jain, Chaudhary, & Jain (2016) showed that business students that had been mentored had higher business self-efficacy.

It is also possible that self-efficacy could be affected by socioeconomic status (SES). College students are typically of a higher SES and the present sample consisted solely of current college students. Previous research showed that among cancer patients, SES levels greatly

affected a patients self-efficacy levels, indicating that lower SES led to lower self-efficacy (Yuan et al., 2014).

Another concept that we struggled to explain was why priming did not influence self-efficacy levels. One explanation is that the wording we used was not strong enough to incite stereotype threat even in the explicit prompts. On the other end of the spectrum, maybe we were too blatant with our prompts. This might have caused backlash among our female participants who did not want to fall into the stereotype presented, causing them to rate themselves higher on the scale. While this study suggests that priming does not influence self-efficacy levels, these results conflict with those of previous studies, and thus, this topic deserves further attention.

### **Limitations and future research**

When taking the results of this study into account, a few limitations should be acknowledged. These limitations provide the opportunity for future research to be conducted on this topic. One of the primary limitations is this was a cross-sectional study that only measured the participants self-efficacy levels at a specific point in time. Had we collected information on their self-efficacy levels over a number of months and averaged them, the results might have varied.

Our participants were also all college students at Appalachian State, and most of them were Caucasian business students. This sample does not accurately represent all college populations in North Carolina or the United States.

This study should be replicated in other more diverse college settings to see if the results differ. Further research should be conducted in general regarding whether priming can influence self-efficacy. Another area that could use more research is if stereotype threat negatively or positively impacts self-reported self-efficacy levels. Another area of study that is currently

deficient is if implicitly or explicitly prompting people can have a greater effect on their self-efficacy levels.

If more research is conducted surrounding self-efficacy levels, employers may have the ability to strengthen their workforce, specifically their female employees. This research could help employers better understand how to communicate and handle their workforce. If self-efficacy can be increased among employees, employers are likely to see higher productivity, more self-confidence in decision making, and higher levels of empowerment. In many business sectors, women are marginalized and underpaid and giving them a greater chance to succeed could go a long way in closing the gender inequality gap (Benjamin, 1999).

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**Table 1***Intercorrelations and descriptive statistics*

Variable	1	2	3	4	5	6	7
1. Sex	--						
2. Leadership position	-.07	--					
3. Condition 1 (n = 53)	-.08	.12	--				
4. Condition 2 (n = 52)	.02	-.06	-.32*	--			
5. Condition 3 (n = 50)	.04	-.06	-.32*	-.31*	--		
6. Condition 4 (n = 54)	.01	.00	-.33*	-.33*	-.32*	--	
7. Self-efficacy	-.09	-.14**	-.07	.1	-.03	-.00	--
<i>M</i>	1.5	1.6	.25	.24	.23	.25	4.3
<i>SD</i>	.50	.49	.43	.43	.42	.44	.51

*n* = 209, unless otherwise denoted

\* Correlation is significant at the 0.01 level (2-tailed)

\*\*Correlation is significant at the 0.05 level (2-tailed)

## **Appendix A**

### **IRB Approval**

**To:** Alexandria Moxley  
Management  
CAMPUS EMAIL

**From:** Lisa Curtin, PhD, IRB Chairperson

**Date:** 6/21/2016

**RE:** Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)

**STUDY #:** 16-0324

**STUDY TITLE:** The influence of identification on self-efficacy

**Submission Type:** Initial

**Expedited Category:** (7) Research on Group Characteristics or Behavior, or Surveys, Interviews, etc.

**Approval Date:** 6/21/2016

**Expiration Date of Approval:** 6/20/2017

The Institutional Review Board (IRB) approved this study for the period indicated above. The IRB found that the research procedures meet the expedited category cited above. IRB approval is limited to the activities described in the IRB approved materials, and extends to the performance of the described activities in the sites identified in the IRB application. In accordance with this approval, IRB findings and approval conditions for the conduct of this research are listed below.

#### **Approval Conditions:**

Appalachian State University Policies: All individuals engaged in research with human participants are responsible for compliance with the University policies and procedures, and IRB determinations.

Principal Investigator Responsibilities: The PI should review the IRB's list of PI responsibilities. The Principal Investigator (PI), or Faculty Advisor if the PI is a student, is ultimately responsible for ensuring the protection of research participants; conducting sound ethical research that complies with federal regulations, University policy and procedures; and maintaining study records.

Modifications and Addendums: IRB approval must be sought and obtained for any proposed modification or addendum (e.g., a change in procedure, personnel, study location, study instruments) to the IRB approved protocol, and informed consent form before changes may be implemented, unless changes are necessary to eliminate apparent immediate hazards to participants. Changes to eliminate apparent immediate hazards must be reported promptly to the IRB.

Approval Expiration and Continuing Review: The PI is responsible for requesting continuing review in a timely manner and receiving continuing approval for the duration of the research with human participants. Lapses in approval should be avoided to protect the welfare of enrolled participants. If approval expires, all research activities with human participants must cease.

Prompt Reporting of Events: Unanticipated Problems involving risks to participants or others; serious or continuing noncompliance with IRB requirements and determinations; and suspension or termination of IRB approval by an external entity, must be promptly reported to the IRB.

Closing a study: When research procedures with human subjects are completed, please log into our system at [https://appstate.myresearchonline.org/irb/index\\_auth.cfm](https://appstate.myresearchonline.org/irb/index_auth.cfm) and complete the Request for Closure of IRB review form.

**Websites:**

1. PI responsibilities:

<http://researchprotections.appstate.edu/sites/researchprotections.appstate.edu/files/PI%20Responsibilities.pdf>

2. IRB forms: <http://researchprotections.appstate.edu/human-subjects/irb-forms>

## **Appendix B**

### **Informed Consent**

#### **Consent to Participate in Research**

Information to Consider About this Research

#### **Self-efficacy**

Principal Investigator: Alexandria Moxley

Department: Management

Contact Information: Alexandria Moxley (PI) – [moxleyas@appstate.edu](mailto:moxleyas@appstate.edu); Jacqui Bergman (FA) – 4075 Peacock Hall, Department of Management, Appalachian State University, Boone, NC 28608; phone: 828-262-4958; [bergmanjz@appstate.edu](mailto:bergmanjz@appstate.edu).

You are being invited to take part in a research study about self-efficacy. If you take part in this study, you will be one of about 200 people to do so. By conducting this study we hope to learn about how levels of self-efficacy differ across various types of individuals.

The research procedures will be conducted at Appalachian State University, Boone, NC 28608.

This online survey will consist of a short series of questions about yourself and your recent experiences. You will also be asked to provide basic demographic information (e.g., age, class rank, etc.).

You cannot volunteer for this study if are under 18 years of age.

#### **What are possible harms or discomforts that I might experience during the research?**

To the best of our knowledge, the risk of harm for participating in this research study is no more than you would experience in everyday life.

#### **What are the possible benefits of this research?**

There may be no personal benefit from your participation but the information gained by doing this research may help others in the future by improving our understanding of why different people may have higher levels of self-efficacy than other.

#### **Will I be paid for taking part in the research?**

You will not be paid for your participation in this study. However, you will be offered the opportunity to earn extra course credit from your instructor for participating. Should you wish to

not participant in this research, you will have the option of completing an alternative assignment for extra credit in lieu of completing this survey.

**How will you keep my private information confidential?**

All of the information you provide will be kept strictly confidential. You will be asked to provide your name, to ensure that you receive extra course credit for participating. However, your name will be kept separate from your responses to the survey. This means that no one, outside of the investigators, will know which information was given by which participants. The data will be kept indefinitely.

**Who can I contact if I have questions?**

The people conducting this study will be available to answer any questions concerning this research, now or in the future. You may contact the Principal Investigator at [moxleyas@appstate.edu](mailto:moxleyas@appstate.edu). If you have questions about your rights as someone taking part in research, contact the Appalachian Institutional Review Board Administrator at 828-262-2692 (days), through email at [irb@appstate.edu](mailto:irb@appstate.edu) or at Appalachian State University, Office of Research and Sponsored Programs, IRB Administrator, Boone, NC 28608.

**Do I have to participate? What else should I know?**

Your participation in this research is completely voluntary. If you choose not to volunteer, there will be no penalty and you will not lose any benefits or rights you would normally have. If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. There will be no penalty and no loss of benefits or rights if you decide at any time to stop participating in the study. A copy of this consent form is available by contacting the Principal Investigator at 678-789-9521

I have read the information above, and consent to participate in this research.

Yes or No

## Appendix C

### New General Self-Efficacy Scale

For the following 8 items, please rate each statement on a scale of "Strong disagree" to "Strongly agree," indicating the extent to which the statement describes you.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I will be able to achieve most of the goals that I have set for myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When facing difficult tasks, I am certain that I will accomplish them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In general, I think that I can obtain outcomes that are important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe I can succeed at most any endeavor to which I set my mind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will be able to successfully overcome many challenges.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident that I can perform effectively on many different tasks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to other people, I can do most tasks very well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even when things are tough, I can perform quite well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## **Appendix D**

### **Priming**

#### **Condition 1 – implicit priming, self-efficacy as masculine**

The purpose of this study is to examine how people differ in their levels of self-efficacy. Self-efficacy is defined as the belief in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands. Research in psychology indicates that individuals with high self-efficacy typically possess certain traits. These traits include qualities such as assertiveness and dominance. These traits help people feel more confident about their ability level across many different situations.

#### **Condition 2 – explicit priming, self-efficacy as masculine**

The purpose of this study is to examine how people differ in their levels of self-efficacy. Self-efficacy is defined as “the belief in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands.” Research in psychology indicates that individuals with high self-efficacy typically possess certain traits, such as assertiveness and dominance. Men tend to have higher self-efficacy than women, because of their tendency to possess high levels of assertiveness and dominance. These traits help men to feel more confident about their ability level across many different situations.

#### **Condition 3 – implicit priming, leaders**

The purpose of this study is to examine how people differ in their levels of self-efficacy. Self-efficacy is defined as “the belief in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands.” Individuals who experience a sense of responsibility and accomplishment tend to have high self-efficacy, as such experiences help people feel more confident about their ability level across many different situations.

#### **Condition 4 – explicit priming, leaders**

The purpose of this study is to examine how people differ in their levels of self-efficacy. Self-efficacy is defined as “the belief in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands.” Individuals in leadership positions tend to have high self-efficacy because they typically experience a sense of responsibility and accomplishment. Having a sense of responsibility and accomplishment helps leaders feel more confident in their ability to influence a group.